

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-174 are currently pending. Claims 58-60 have been amended; and Claims 61-174 have been added by the present amendment. The changes and additions to the claims are supported by the originally filed specification and do not add new matter.

In the outstanding Office Action, Claim 58 was objected to as being dependent upon itself; Claims 1, 2, 59/1, 59/2, 60/1, and 60/2 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,359,513 to Kano et al. (hereinafter "the '513 patent") in view of U.S. Patent No. 5,235,510 to Yamada et al. (hereinafter "the '510 patent"); Claims 3-29 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form; Claim 58 was indicated as allowable if rewritten to overcome the objection set forth in the Office Action; and Claims 30-57 were allowed.

Applicants wish to thank the Examiner for the interview granted Applicants' representative on February 10, 2005, at which time the outstanding rejection of the claims was discussed. In particular, Applicants' representative presented arguments that the '510 patent fails to disclose the mirror image of a chest image recited in Claim 1. At the conclusion of the interview, the Examiner agreed to further consider the claims upon formal submission of a response to the outstanding Office Action.

Applicants respectfully submit that the objection to Claim 58 is rendered moot by the present amendment to that claim. Claim 58 has been amended to depend from Claim 57. Accordingly, the objection to Claim 58 is believed to have been overcome.

Claim 1 is directed to a method of computerized processing of chest images, the improvement comprising: (1) obtaining a digital first image of a chest; (2) producing a second image which is a mirror image of the first image; (3) performing image warping on

one of the first and second images to produce a warped image that is registered to the other of the first and second images; and (4) subtracting the warped image from the other image to generate a subtraction image.

Regarding the rejection of Claim 1 under 35 U.S.C. §103, the Office Action asserts that the '513 patent disclosed everything in Claim 1 with the exception of producing a second image which is a mirror image of the first image, and relies on the '510 patent to remedy that deficiency.

The '513 patent is directed to a method and system for the detection of interval change in temporally sequential chest images. The '513 patent discloses a system in which a pair of images are digitized and then subjected to image registration including nonlinear warping of one of the images so that corresponding locations in the two images are aligned with each other.<sup>1</sup> However, as admitted in the Office Action, the '513 patent fails to disclose the step of producing a second image which is a mirror image of the first image, as recited in Claim 1.

The '510 patent is directed to a picture archiving communication system for storing digital image data for medical use. In particular, Figures 30-32 of the '510 patent are directed to a CAD display of a marker, e.g., the arrow shown in Figures 30-32. The arrow marker is used to indicate the location of an abnormality in the image. Thus, the '510 patent discloses that

[i]f the abnormality location is present on the right side, the arrow and the ROI of FIG. 32 are converted directly into bit patterns. If the location is present on the left side, the arrow of FIG. 32 is inverted in a mirrorlike manner, and the resulting arrow indicated by a broken line in FIG. 32 and the ROI are converted into bit patterns.<sup>2</sup>

However, Applicants respectfully submit that the '510 patent fails to disclose the step of producing a second image which is a mirror image of the first image, wherein the first image is an image of a chest, as recited in Claim 1. Rather, the '510 patent merely discloses

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<sup>1</sup> '513 Patent, Abstract.

<sup>2</sup> '510 Patent, column 13, lines 23-29.

displaying two arrow markers that are mirror images of one another to indicate the location of an abnormality in an image. However, the '510 patent fails to disclose producing a mirror image of a chest image, as recited in Claim 1.

Thus, no matter how the teachings of the '513 and the '510 patents are combined, the combination does not teach or suggest producing a second image which is a mirror image of the first image, wherein the first image is a chest image, as recited in Claim 1. Accordingly, Applicants respectfully submit that a *prima facie* case of obviousness has not been established and that the rejection of Claim 1 (and dependent Claim 2) should be withdrawn.

In the outstanding Office Action, the stated motivation for combining the teachings of the '513 and '510 patents is "to increase the precision of outputting computer aided diagnosis data."<sup>3</sup> However, Applicants respectfully submit that the Office Action is simply stating perceived advantages of Applicants' invention, without showing that one of ordinary skill in the art would even have thought to address the problem. Such hindsight reconstruction of Applicants' invention cannot be used to establish a *prima facie* case of obviousness. Specifically, the Office Action has not provided motivation for why one of ordinary skill in the art would select, from all available teachings, the '510 patent's disclosure of the mirrorlike inversion of marker arrows as motivation to modify the teachings of the '513 patent by producing a mirror image of a chest image prior to performing image warping on one of the images, and prior to subtracting one of the warp images from the other image to generate a subtraction image, as recited in Claim 1. The Office Action has failed to identify why one of ordinary skill in the art, would be motivated to incorporate the production of mirrorlike images into an image subtraction process. Applicants respectfully submit that the arrow markers disclosed by the '510 patent are merely directed to labeling image data, and have

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<sup>3</sup> Office Action dated December 6, 2004, page 4.

nothing to do with the image subtraction and nonlinear warping processes disclosed by the '513 patent.

Recently, the Federal Circuit has cautioned against the use of "generalized statements of advantages without regard to the desirability or the feasibility of modifying the prior art"<sup>4</sup> in providing motivation for a rejection under 35 U.S.C. § 103. The Federal Circuit notes that

...conclusory statements of generalized advantages and convenient assumptions about the skilled artisans...are inadequate to support a finding of motivation, which is a factual question that cannot be resolved on 'subjective belief and unknown authority'.... Under such circumstances, with respect to core factual findings, the Board must point to some concrete evidence in the record in support of them, rather than relying on its assessment of what is well recognized or what a skilled artisan would be well aware.<sup>5</sup>

Accordingly, for the reasons stated above, Applicants respectfully submit that a *prima facie* case of obviousness has not been established and that the rejection of Claim 1 should be withdrawn.

Claims 59/1 and 60/1 recite limitations analogous to the limitations recited in Claim 1. Moreover, Applicants note that Claims 59 and 60 have been amended to no longer be multiple dependent claims, but have been rewritten in independent form. Accordingly, for the reasons stated above for the patentability of Claim 1, Applicants respectfully submit that a *prima facie* case of obviousness has not been established and that the rejection of Claims 59 and 60 should be withdrawn.

The present amendment also sets forth new Claims 61-174 for examination on the merits. As discussed above, Claims 59 and 60 have been amended to be independent claims. Accordingly, to maintain the equivalent patent coverage, system Claims 61-117 have been added by the present amendment. Similarly, storage medium Claims 118-174 have been

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<sup>4</sup> In re Bruce Beasley, 2004 U.S. App. LEXIS 25055 (Fed. Cir., 2004).

<sup>5</sup> Id. at 25072 (citations omitted). Emphasis added.

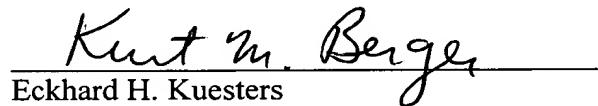
added by the present amendment. Thus, new Claims 61-174 are supported by the originally filed specification and do not add new matter.

Thus, it is respectfully submitted that independent Claims 1, 30, 59, 60, 89, and 146 (and all associated dependent claims) patentably define over any proper combination of the '510 and '513 patents.

Consequently, in view of the present amendment and in light of the above discussion, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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